Spectrum Supportability Outreach

Overview

- The Situation
- Spectrum Supportability Vision
- Spectrum Supportability Initiatives
  - Re-emphasis of DoD Policy
  - Integration of Spectrum Supportability actions into the Requirements and Acquisition Processes
  - Education and Awareness
  - Development of Automated Tools

Importance of Spectrum to DoD

Spectrum Is A Critical National Security Asset with Significant International Implications

DoD Spectrum Management Core Principles

- Spectrum Is a Vital National Resource
- Spectrum Is a Core Enabler of What DoD Does and Is Indispensable to National Security
- DoD Must Be a Good Spectrum User
- DoD Commits to Continue Investing in New, Spectrum-efficient Technologies
- DoD Commits to Actively Supporting US Policies and Interests in International Spectrum Bodies and Negotiations

GAO's Most Recent Report to Congress (30 Apr 03)

- **Consideration of Spectrum Supportability continues to be a problem within the acquisition process**
- **Examples Include:**
  - **System Developers who failed to acquire SS knowledge**
  - **System Developers who acquired SS info but did not act on it**
  - **System Developers who addressed spectrum too late in the process**
- **Resulting in:**
  - **Significant Program Delays and Operational Limitations**
  - **The need for expensive system redesign**
- **Contributing Factors:**
  - **Dated and unclear Spectrum Mgt guidance not aligned with current acquisition models**
  - **Lengthy spectrum certification process**
  - **Increased reliance on commercial communications services**
  - **Cutting edge technologies that challenge the traditional allocation of spectrum frequencies**

Same Theme for Several Years

- **DoD IG Report (1998)**
  - 89 systems fielded without proper frequency certification or Host Nation Approval
- **Defense Science Board (Nov 2000)**
  - Spectrum should be addressed as explicit DAB checkpoint during system acquisition
- **GAO Report (May 2001)**

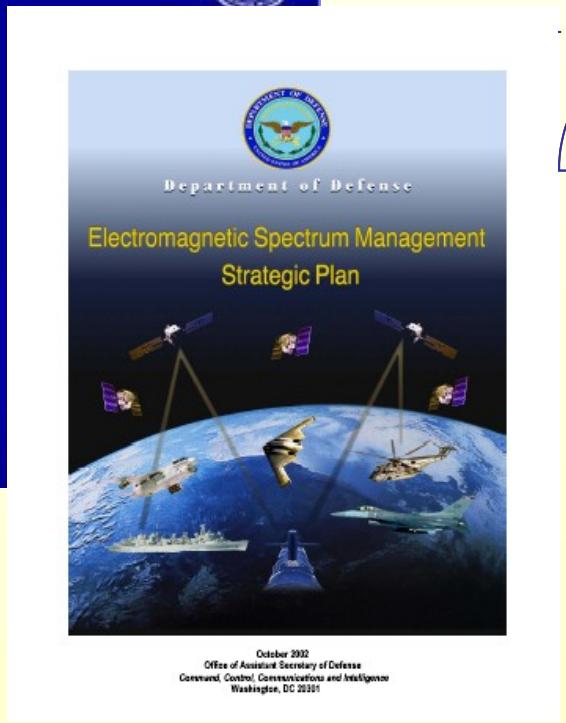
  " . . . the new acquisition guidance establishes procedures that require all new weapon systems acquisition programs to be reviewed for potential electromagnetic and spectrum management problems as they go through the acquisition process . . . However, this new guidance has only been in effect for less than 6 months and no weapons systems have been developed using these new procedures."

<u>Common Theme</u>: Neither Spectrum Management nor Acquisition Process has adequate enforcement mechanisms to ensure Spectrum Supportability

Spectrum Supportability Vision

All systems fielded can obtain spectrum assignments and operate in such a way as to provide the capability (the warfighter) needed when the requirement was generated

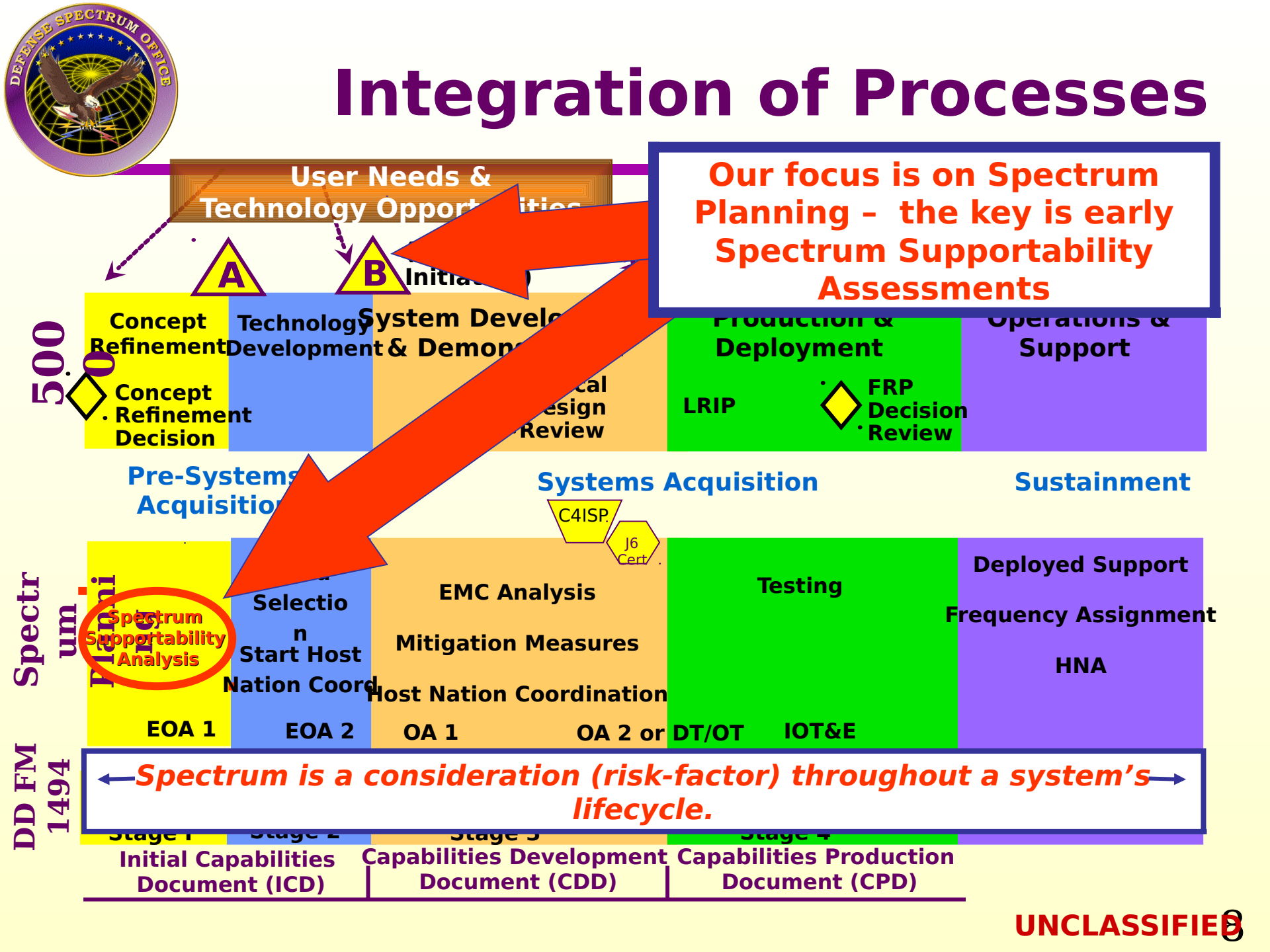
Current DoD Policy Guidance



Participate in cooperative engagement at the earliest stages of new technology

- DoD Program Managers address EM spectrum certification and E3 issues at each milestone.
- DoD program mangers address host nation approval at each milestone for all EM spectrum dependent systems.

Integration of Processes



Spectrum Planning

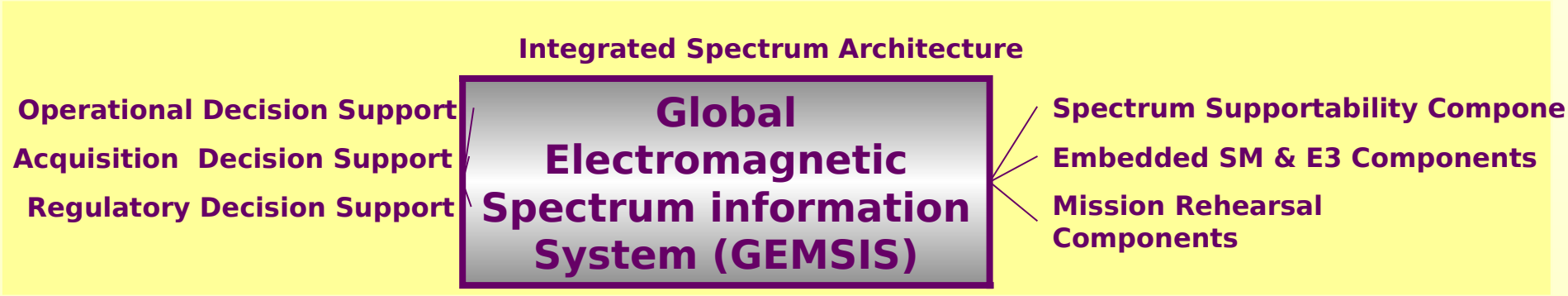
- **Proactive consideration of spectrum early in the acquisition process is key**
  - **Conduct early and informal interchanges with the spectrum management community**
  - **Bring in the spectrum experience and expertise needed to properly consider and assess spectrum supportability**
- **Acquisition "Best Practices"**
  - **Establish Spectrum Mgt office in every acquisition command**
  - **Command leadership strongly supports their Spec Mgt offices**
    - **Provide the charter and resources to go out to educate & interact with all offices in their command**
    - **Include status of spectrum supportability during Milestone reviews (even Milestone A)**

Awareness and Education

- "Spread the Word"
  - Briefings/Training provided upon request
- Insertion into DAU Courses
- Recurring presence at DAU
- Community of Practice (CoP) with link from Deskbook (AKSS)
- Awareness articles in acquisition publications

Spectrum Planning Tools

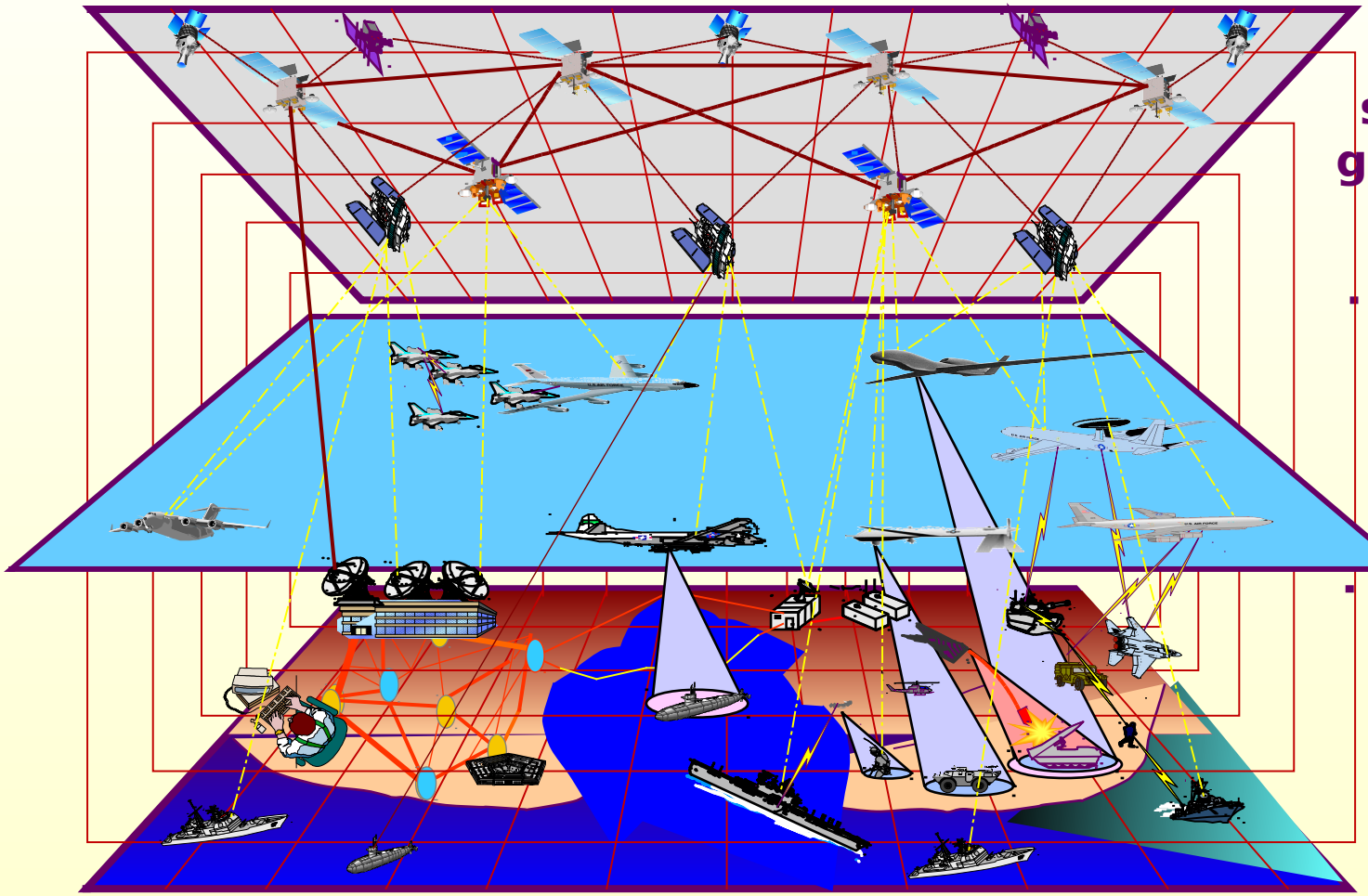
- **Current:**
  - Host Nation Spectrum Worldwide Database (HNSWD)
  - Spectrum Certification System (SCS)
- **Short-term (1-2 Years):**
  - Defense Spectrum Supportability System (DS3)
  - Web-based and integration of existing systems
- **Future(10-20 Years):**
  - Overarching Electromagnetic Spectrum Management Tool Suite



The Way Ahead

- **Actions for the Spectrum Mgt Community**
  - **Develop DoD Guidance for Spectrum Planning within the Acquisition Process**
  - **Address Spectrum Certification process improvements**
    - **Modified Form for COTS**
    - **Additional Information Fields to address New Technology**
- **Actions for the Acquisition Community**
  - **Consider spectrum during pre-acquisition activities**
  - **Ensure spectrum supportability is addressed at each milestone**
  - **Account for spectrum risk factors as part of program risk**
  - **Know your Spectrum Management support personnel and engage with them frequently**

Our End Goal is the Same



Integrated space, air and ground systems

Integrated Decision-making

Operational Superiority

Joint Warfighting capabilities that are globally deployable . . .

BACK-UPs

Spectrum Supportability

Spectrum Supportability:

The determination as to whether the electromagnetic spectrum necessary to support the operation of a spectrum-dependent equipment or system during its expected life cycle is, or will be, available (that is, from system development, through developmental and operational testing, to actual operation in the electromagnetic environment).

The assessment of an equipment or system as having "spectrum supportability" is based upon, at a minimum, receipt of equipment spectrum certification, reasonable assurance of the availability of sufficient frequencies for operation, and consideration of electromagnetic compatibility (EMC).

Questions

- Are you aware of Spectrum Supportability as an issue within the acquisition system? Do you know that spectrum is an important consideration early in the development cycle?
- Do you know the current 5000 requirements for systems requiring use of spectrum? What does it mean to you?
- Do you know what Spectrum Supportability actions need to be taken and when during the acquisition process?
- Is the spectrum certification process (DD FM 1494) clearly defined in your view? Are you aware of the 4 different stages?
- Do you know the difference between spectrum allocation and assignment?
- Are you familiar with the difference between the National and International allocation and assignment processes?
- If you don't know anything about spectrum, do you at least know to whom you can turn in your organization/cmd for knowledgeable support on spectrum?
- At what point in the requirements/acquisition process do you seek guidance?
- Do you receive feedback that is adequate and timely enough to be useful?
- Are you satisfied with the support that you receive?

Need to Re-define Spectrum Supportability Actions within the 5000 Acquisition Process

- Current ***Spectrum Certification*** Process
  - Addresses US Allocation, Regulations and Licensing
  - Limited interaction between acquisition and spectrum community
    - Submit DD Fm 1494
  - "Yes" or "No" answer
  - Not inclusive of Host Nation Coordination

- ***Spectrum Supportability*** requires Certification, but also . . . . . .
  - Consideration of worldwide allocations and Host Nation regulations
  - Consideration of future spectrum plans
  - Feedback early in the development process
  - Potential for obtaining assignments
  - Electromagnetic Environmental Effects (E3) considerations

Process and Procedures to be included in DoDI 4650.XX

Integration of Processes Current DoDI 5000.2 Requirement

Statutory:	DoDI 5000.2, Operation of the Defense Acquisition System	
Spectrum C Compliance (DD Form 1494) (applicable to all systems/equipment that require utilization of the electromagnetic spectrum)	Pub. L. 102-538, 104, reference (y) 47 U.S.C. 901-904, reference (z) OMB Circular A-11, Part 2, reference (b) DoD Directive 4650.1, reference (aa)	MS C (if no MS B)

DD Form 1494 Stages

- **Stage 1: Conceptual**
  - Initial planning complete, including proposed frequency bands
- **Stage 2: Experimental**
  - Preliminary design complete, radiation using test equipment and preliminary models may be required
- **Stage 3: Developmental**
  - Major design complete and radiation required for testing
- **Stage 4: Operational**
  - Development is complete and final operating